AMENDMENTS TO THE DRAWINGS

The attached replacement and annotated sheet(s) of drawings depict changes to FIG. 1. The changes made to FIG. 1 are made in accordance with the suggestion of the Examiner, namely to add the label of "PRIOR ART" to FIG. 1.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

REMARKS

The Examiner is thanked for the performance of a thorough search.

Claims 1-18 are pending in the application. Claims 1, 5, 9-10, 14, and 18 are amended, and no claims have been cancelled or added. The amendments to the claims as indicated herein do not add any new matter to this application. Furthermore, amendments made to the claims as indicated herein have been made to exclusively improve the identification of the subject matter of which patent protection is desired and not for the purpose of overcoming any alleged prior art. All issues raised in the Office Action are addressed below.

OBJECTIONS TO THE FIGURES HAVE BEEN OVERCOME

FIG. 1 was objected to for failing to contain a label of "PRIOR ART" as allegedly only prior art is depicted in FIG. 1. FIG. 1 has been amended herein in accordance with the suggestion of the Examiner. Consequently, it is respectfully submitted that the objection to FIG. 1 has been overcome.

ALL PENDING CLAIMS CONFORM TO 35 U.S.C. § 101

Claims 1-18 have been rejected under 35 U.S.C. § 101 because the claims are allegedly directed towards non-statutory subject matter.

Claims 1-9 are directed towards a method, which is a process. A process is expressly identified as statutory subject matter under 35 U.S.C. § 101. Therefore, Claims 1-9 are directed towards statutory subject matter.

Despite Claims 1-9 being directed towards subject matter expressly recognized under 35 U.S.C. § 101, the Office Action states that Claims 1-9 are not statutory because

they allegedly do not produce a useful and tangible result. Applicants disagree. The background of the Applicants' specification describes how the recovery of a database system involves the expenditure of time and resources, which are considered to be precious commodities by many. Claims 1-9 feature approaches for reducing the amount of time and resources that are required to recover a database system. Therefore, a more efficient approach for recovering a database system is both useful and tangible, since precious commodities such as time and resources may be saved. If the Patent Office does not agree that the recovery of a database system is a useful and tangible result, then the Patent Office is respectfully requested to consider whether it would be useful or tangible to recover a database system employed and relied upon by the Patent Office if such a database system were to crash or otherwise become inoperable. Consequently, it is respectfully submitted that Claims 1-9 are directed towards statutory subject matter.

A computer-readable medium that carries instructions that may be executed by a computer is an article of manufacture, and as such, is expressly recognized by 35 U.S.C. § 101 as being patentable subject matter. The Patent Office has long recognized that a computer-readable medium, which carries one or more sequences of instructions, which when executed, cause the performance of steps that are patentable subject matter, is itself patentable (see *In re Beauregard*). Even after the Patent Office adopted the Interim Guidelines for Examination of Patent Applications, the Patent Office has continued to issue many patents containing a claim directed towards a computer-readable medium. Claims 10-18 are each alleged to be non-statutory for the sole reason that they do not produce a useful and tangible result. However, a computer-readable medium that carries one or more sequences of instructions, which when executed, recovers a database system yields a useful and tangible result, as explained above.

To illustrate, if the position of the Office Action were to be true, then if a database system relied upon by the Patent Office were to become inoperable, then, according to the Office Action, it would not be useful to possess software on a computer-readable medium that, when executed, recovers the database system. This is not logical. The use of a database system is a useful and tangible act, and thus the recovery of the database system must also be useful and tangible. Therefore, Claims 1-18 must be directed towards statutory subject matter under 35 U.S.C. § 101.

Therefore, the rejection of Claims 1-18 is respectfully requested to be withdrawn.

THE PENDING CLAIMS ARE PATENTABLE OVER THE CITED ART

Claims 1-3, 6-12, and 15-18 have been rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over portions of the Applicants' own background ("*APA*") in view of U.S. Patent 5,721,918 issued to Nilsson et al. ("*Nilsson*"). Claims 4-5 and 13-14 have been rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over *APA* in view of *Nilsson* in view of U.S. Patent 6,131,094 issued to Gord ("*Gord*"). Applicants respectfully traverse.

Even if the cited art were to be properly combined, each of the pending claims recites at least one element that is not disclosed, taught, or suggested by the cited art, either individually or in combination.

Claim 1

Claim 1 recites:

> "maintaining a checkpoint value that indicates which records of a plurality of records have to be processed after the failure, wherein the

> plurality of records indicate changes for a plurality of data blocks; and
>
> **writing changes from volatile memory to nonvolatile memory to advance the checkpoint value based on a user-specified value that corresponds to how much work will be required during a redo phase of recovery"**

At least the above-bolded element of Claim 1 is not disclosed, taught, or suggested by *APA* or *Nilsson*.

Claim 1 recites the element of "writing changes from volatile memory to nonvolatile memory to advance the checkpoint value based on a user-specified value that corresponds to how much work will be required during a redo phase of recovery." The portion of *APA* cited to show this element (paragraph 21) merely describes what a checkpoint operation is, how it may be used, and why it is useful. For example, paragraph 21 of the Applicants' background states, "in order to reduce the number of data blocks and redo records that are unnecessarily read into memory during a recovery operation, a checkpoint operation may be periodically executed." However, the Applicants' background also describes problems associated with this approach, for example:

> In certain cases, requiring a large number of data blocks to be accessed during recovery can result in unacceptably long downtimes. In addition, because the number of data blocks that need to be accessed during recovery can significantly vary, it is difficult, if not impossible, for a database administrator to predict the amount of downtime that will be required to recover after a database failure. (paragraph 28 of the Applicants' background).

The approach of Claim 1 solves problems experienced by the approach discussed in paragraph 21 of the Applicants' background. Claim 1 advantageously features writing changes from volatile memory to nonvolatile memory to advance the checkpoint value based on a user-specified value that corresponds to how much work will be required

during a redo phase of recovery. There is no teaching or suggestion anywhere in the *APA* of writing changes from volatile memory to nonvolatile memory based on a user-specified value that corresponds to how much work will be required during a redo phase of recovery. If the Office disagrees, the Office is respectfully requested to more particularly identify the portion of the Applicants' background that discusses or suggests this element. Consequently, this element cannot be disclosed, taught, or suggested by the *APA*.

Similarly, this element is not taught or suggested by *Nilsson*. No portion of *Nilsson* is alleged to show, or does in fact show, this subject matter. Consequently, even if the APA were to be combined with *Nilsson*, the resulting combination would still fail to teach or suggest the above-bolded element.

As at least one element is not disclosed, taught, or suggested by the *APA* or *Nilsson*, either individually or in combination, it is respectfully submitted that Claim 1 is patentable over the cited art and is in condition for allowance.

Claim 9

Claim 9 recites:

> "maintaining a checkpoint value that indicates which records of a plurality of records have to be processed after the failure, wherein the plurality of records indicate changes for a plurality of data blocks;
>
> determining a required recovery time, wherein the required recovery time indicates a maximum length of time that is to be allowed for recovering after said database system failure; and
>
> **writing changes from volatile memory to nonvolatile memory to advance the checkpoint value based on the maximum number of data block reads that can be performed in the required recovery time"**

At least the above-bolded element of Claim 9 is not disclosed, taught, or suggested by *APA* or *Nilsson*.

Claim 9 recites the element of "writing changes from volatile memory to nonvolatile memory to advance the checkpoint value based on the maximum number of data block reads that can be performed in the required recovery time." The portion of *APA* cited to show this element (paragraph 21) merely describes what a checkpoint operation is, how it may be used, and why it is useful. For example, paragraph 21 of the Applicants' background states, "in order to reduce the number of data blocks and redo records that are unnecessarily read into memory during a recovery operation, a checkpoint operation may be periodically executed." However, the Applicants' background also describes problems associated with this approach, for example:

> In certain cases, requiring a large number of data blocks to be accessed during recovery can result in unacceptably long downtimes. In addition, because the number of data blocks that need to be accessed during recovery can significantly vary, it is difficult, if not impossible, for a database administrator to predict the amount of downtime that will be required to recover after a database failure. (paragraph 28 of the Applicants' background).

The approach of Claim 9 solves problems experienced by the approach discussed in paragraph 21 of the Applicants' background. Claim 9 advantageously features writing changes from volatile memory to nonvolatile memory to advance the checkpoint value based on the maximum number of data block reads that can be performed in the required recovery time. There is no teaching or suggestion anywhere in the *APA* of writing changes from volatile memory to nonvolatile memory based on the maximum number of data block reads that can be performed in the required recovery time. If the Office disagrees, the Office is respectfully requested to more particularly identify the portion of

the Applicants' background that discusses or suggests this element. Consequently, this element cannot be disclosed, taught, or suggested by the *APA*.

Similarly, this element is not taught or suggested by *Nilsson*. No portion of *Nilsson* is alleged to show, or does in fact show, this subject matter. Consequently, even if the APA were to be combined with *Nilsson*, the resulting combination would still fail to teach or suggest the above-bolded element.

As at least one element is not disclosed, taught, or suggested by the *APA* or *Nilsson*, either individually or in combination, it is respectfully submitted that Claim 9 is patentable over the cited art and is in condition for allowance.

Claims 2-8 and 10-18

Claims 10 and 18 feature limitations similar to those discussed above with respect to Claims 1 and 9 respectively, except that Claims 10 and 18 are recited in computer-readable medium format. Consequently, for at least the reasons given above with respect to Claims 1 and 9, it is respectfully submitted that Claims 10 and 18 are patentable over the cited art and are each in condition for allowance.

Claims 2-8 and 10-17 are dependent claims, each of which depends (directly or indirectly) on one of the claims discussed above. Each of Claims 2-8 and 10-17 is therefore allowable for the reasons given above for the claim on which it depends. In addition, each of Claims 2-8 and 10-17 introduces one or more additional limitations that independently render it patentable. However, due to the fundamental differences already identified, to expedite the positive resolution of this case a separate discussion of those limitations is not included at this time, although the Applicants reserve the right to further

point out the differences between the cited art and the novel features recited in the dependent claims.

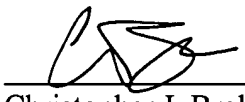
CONCLUSION

For the reasons set forth above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any fee shortages or credit any overages Deposit Account No. 50-1302.

Respectfully submitted,
HICKMAN PALERMO TRUONG & BECKER LLP



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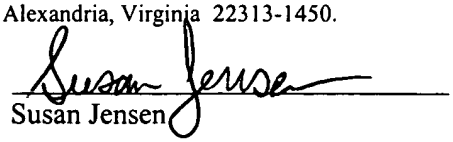
on 9/22/06 by 
Susan Jensen

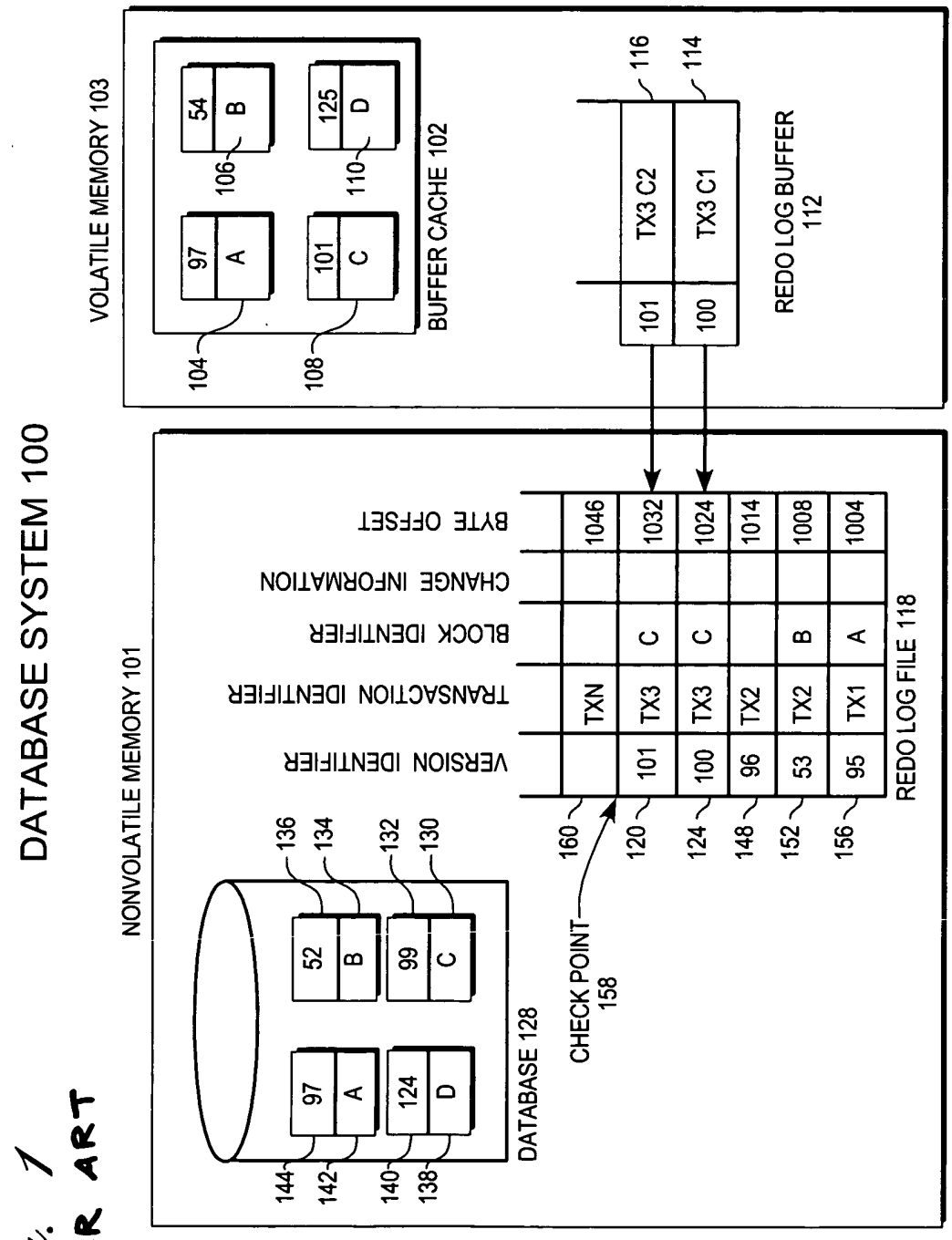


Fig. 1
PRIOR ART